nighttime driving restriction.[4] The population-based rates declined 42% and 30% for nighttime and daytime crashes respectively, representing a 40% greater decline in night crashes.

There is an even greater relative decrease in crashes of all severity levels during nighttime hours. Whereas nighttime crashes decreased by 47%, daytime crashes declined by 22%. Stated differently, nighttime crashes declined by more than twice as much as daytime crashes. Adjusting for population increases, nighttime crashes declined 49% and daytime crashes decreased by 26%, an 88% greater decrease during restricted hours than during daylight hours. The benefit of North Carolina's 9 p.m. to 5 a.m. restriction on driving for inexperienced drivers is clear from all these findings.

The results concerning nighttime vs. daytime crashes may represent a somewhat conservative estimate of the benefits of the night driving restriction. This restriction applies for only six months during the second stage of licensing. Hence, during 1999, although many of the 16-year-old drivers were limited by the night driving restriction; a substantial proportion would have already moved on to the third and final licensing level, which imposes no restriction on nighttime driving.[5]

DISCUSSION

The results of the present analysis clearly indicates that the North Carolina Graduated Driver Licensing system is having the intended benefit. Among the age group of drivers who have all begun driving under this new system, both the number of crashes and crash rates based on population have declined dramatically. Moreover, there is evidence that at least one of the specific elements of the GDL system is having the intended effect as well. As a result of the night driving restriction, crashes during the hours when young driver crash risks are highest have declined even more dramatically. It is not yet clear whether this is due solely to the fact that less driving takes place during those hours or is a combination of that reduced exposure along with increased skill and safer driving behaviors developed through the longer learning period that produce greater benefits during higher risk times. Future analyses will examine this issue in more detail.

Some caution in interpreting the results presented here is in order. Although 2 ½ years have passed since the North Carolina GDL program was implemented, these findings are 'early returns.' They represent real declines in crash rates, but this magnitude of effect should not be expected to continue. Other GDL programs have produced initial crash reductions of similar magnitude to those seen here, but long-term benefits have been found to be smaller. Initial declines following enactment of GDL

[4] Although the number of drivers killed is a small fraction of those involved in crashes, it is worth noting that in 1997 between 9 p.m. and 5 a.m. thirteen 16 year-old drivers were killed. During 1999 *only one* 16 year-old driver was killed during these hours.

[5] A more refined analysis of this issue, to directly identify the proportion of young drivers who were under specific restrictions, will be presented in a future report.